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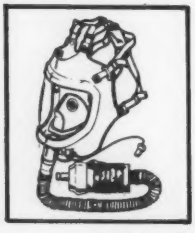
page 2

2 **AVUM—Think Combat,** Captain James A. Fitzpatrick
5 **The Bad Guys Won't Wear Black Hats,** Betty J. Goodson
8 **The Chemical Environment And Army Aviation,** CW2 Thomas E. Whitson
10 **PEARL'S**
11 **Reporting Final**
12 **Alaskan Skymasters, 222d Aviation Battalion,** SP4 Mary Henderson
13 **McKinley Rescue,** CW3 (P) Richard M. O'Connell
16 **Improving Pilot Judgment,** Jerome I. Berlin, Ph.D.
20 **Views From Readers**
21 **Aviation Personnel Notes**
22 **DES Report To The Field: IP Equivalency—What It Is, How It Works**
23 **ACTAAT: Update Of Training Aids**
24 **"Attack Helicopter, Sir! First Strike!"** CPT (P) Lawrence E. Casper
26 **Threat: A Letter From Gorgi,** MAJ (P) William F. Voth

Back Cover: **ATC Action Line: Military Planning Weather Minimums,** Mr. Dennis E. Newport

Black Hats

page 5



page 8

Cover: **Aviation unit maintenance must be practiced today in a manner that reflects concepts advanced by Division 86. Concurrently, it must be compatible with present real-world problems. The key is to "think combat." See story, page 2. Cover illustration by Fred Martin.**

Alaska

page 12

page 24

Honorable John O. Marsh Jr.
Secretary of the Army

Richard K. Tierney
Editor

The mission of the *U.S. Army Aviation Digest (USPS 415-350)* is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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EACH MONTH I have a sneak preview of the *Aviation Digest* when I receive a copy of the mechanicals (the second stage in preparing the finished product). Our editorial board then meets to review the issue for accuracy and content, so that we can provide to you in the field the most current information on aviation matters. But I never cease to be impressed by the wide variety of topics which you, our authors, cover so well. February is certainly no exception!

Captain James A. Fitzpatrick opens the issue with "AVUM: Think Combat"—a splendid work on maintenance and training integration. He cogently observes that training for aviation unit maintenance (AVUM) platoons is not what it must be to prepare them for battle, and he offers some suggestions for present and future actions to overcome that deficiency. It's an irrefutable fact that what's not maintained can't fly, and that is coupled with the truth that aviation tactics are useless if aircraft are not available. Captain Fitzpatrick writes that his purpose is to "encourage AVUM platoon leaders and all aircraft maintenance personnel to conduct day-to-day operations and to plan training with combat in mind." I go a step further by saying that concerned responsible commanders should enact the measures necessary to ensure their maintenance people are trained to work and survive in battle.

There is not a cross hair or word in "A Letter From Gorgi," so how can it be a threat article? Believe me, Major (P) Bill Voth of the Center's Combat Developments Directorate presents therein some carefully researched information we all need to take to heart and mind. The crux is for us to realize that our adversaries are well trained, well equipped and well motivated. If Gorgi's determination to reach his full potential is typical of Soviet aviators, we need to haul down and bury our complacency flag and run up and salute the banner of respect—then prepare ourselves to "respectfully" shoot them from the sky!

Part of that preparation has to be the kind Chief Warrant Officer, CW2, Thomas E. Whitson writes about in "The Chemical Environment and Army Aviation." Training to survive chemical warfare is not pleasant and it's easy to find any number of reasons for not doing so. CW2 Whitson submits for your consideration, however, that not to survive is the only alternative to being well trained!

Ladies and Gentlemen—there is one fact of life we must live with: We're professionals with a vital contribution to make to our nation's defense. We have to tighten our training schedules, sharpen our dedication and SOLDIER ON in a better manner than Gorgi.

Major General Carl H. McNair Jr.
Commander, U.S. Army Aviation Center
Fort Rucker, AL

Captain James A. Fitzpatrick
120th Aviation Company (CS)
Fort Richardson, AK

EXPERIENCE SHOWS that most aircraft maintenance officers, particularly aviation unit maintenance (AVUM) platoon leaders, spend their working hours trying to meet the day-to-day requirements for aircraft availability in their units. It's pretty hard to worry about the AirLand Battle when the alligators are breaking down the hangar doors.

Concepts for future combat, particularly Division 86, are being refined but implementation for most aviation units is still 2 or 3 years away.

What the AVUM platoon leader must consider *now* is how to practice day-to-day maintenance in a manner which reflects concepts being advanced by Division 86, yet is compatible with present-day, real-world problems; and what type of training is necessary at the AVUM platoon level to ease the eventual transition which we all face in the years to come.

The key to both maintaining and training is "think combat." We must operate and train in a manner which will enable AVUM platoons to maintain in combat, *today,* if necessary.

A primary consideration when evaluating combat doctrine is the expected threat. Present doctrine and developing concepts are based on highly mobile, armor heavy, threat forces. These forces are expected to be prepared to advance about 50 km a day during offensive thrusts. They will have the ability to use airborne, helicopter assault and tactical air forces. These units will consider the support areas of U.S. divisions and corps as prime targets. The range and mobility of threat forces means that U.S. Forces will have to be equally mobile to survive.

Aviation units are not as mobile as other combat units; therefore, they normally will be deployed in the division area, with aircraft moving forward into the supported brigade's area for temporary operations. This type of combat configuration means two important things to the AVUM platoon leader. First, the AVUM platoon may be required to move as often as once every 24 hours. Second, the AVUM platoon will spend most working hours away from the aircraft which it is responsible to support. The periods requiring highest mobility will be during the time that combat initially breaks out and during intensive offensive or defensive operations. The periods are called "surge conditions."

Concepts for aviation maintenance in combat being developed by the U.S. Army Transportation School, Ft. Eustis, VA, take into consideration the requirement for AVUM mobility on the future battlefield.

The dominant feature is repair, as far forward as possible. The crewchief or contact teams from the AVUM platoon will complete repairs at the site of breakdown if at all possible. This reduces the amount of time the aircraft is away from the battlefield. Contact teams, which will be task oriented and staffed to complete specific repairs, must constantly be prepared for movement to a downed or damaged aircraft's location. The teams' transportation should be via the fastest possible mode, usually air.

The AVUM platoon leader may need to send a small slice with aircraft when temporary operations require unit aircraft to remain away from the AVUM platoon location for extended periods of time. This slice, normally consisting of a technical inspector and one or two general mechanics, will evaluate problems, determine extent of damage and make decisions concerning materiel, repair parts and repairmen or women necessary to complete work on downed aircraft.

One new concept being developed by the Transportation School requires downed aircraft, which must be recovered as an external load, to be rigged by the owning unit rather than by aviation intermediate maintenance (AVIM) units. This will require AVUM platoons to form and train recovery teams. These

The opinions expressed in this article are those of the author and do not necessarily reflect the views of any Department of Defense agency

teams will be equipped to complete all rigging necessary for the recovery of downed aircraft. The platoon must have immediate access to a recovery aircraft for the transport of the recovery team and special equipment to the recovery site.

Another feature of the future battlefield will be the requirement for a 24-hour maintenance operation. Shortages of personnel will add to the AVUM platoon leader's problem in this area. To a major degree the ability to maintain aircraft, considering these handicaps, will be a result of the imagination and ingenuity the AVUM platoon leader is able to display. We can immediately start practicing one possible technique to ease expected future personnel shortages, and present-day, real-world shortages. This technique is "crosstraining." AVUM platoons can design training programs which train general mechanics to complete repairs normally done by engine repairmen. Engine repairmen can be trained to do limited airframe repair work. Airframe repairmen can be trained to work as general mechanics. Who is trained to repair what is not important. What *is* important is that more than one or two people from each specialty skill in the AVUM platoon must be trained to perform component and airframe repairs. Crosstraining does not necessarily imply that a general mechanic will be able to complete all engine repairs. It may be that a good mechanic is trained to complete the engine repairs most frequently required at the AVUM level. The key to the program is that personnel must be trained and available to deploy quickly to a downed aircraft under battlefield conditions. They must be prepared to make expedient necessary repair of any battle damage.

Another concept being developed by the Transportation School for maintenance operations during surge conditions is deferral or extension of services, inspections and time between overhauls (TBOs). These ideas have not been subjected to engineering or safety evaluation, however. Some examples are:

- Extending lubrications and services to twice normal intervals.
- Deferring scheduled/phase inspections for 300 hours or 30 days.
- Extending TBO components 300 hours or 20 percent.
- Deferring all nonstructural or nonflight safety repairs indefinitely.
- Failures: deferring repairs for noncritical failures with redundant system for 50 hours; deferring repairs for critical failures with redundant system for one time flight; critical failures, during surge or emergency, defer for 3 missions or 10 hours.

These recommendations or ideas may raise a few eyebrows, but remember, we're talking about combat under critical surge conditions. During these conditions the suggestions above may take on a very appealing light.

Another program to help the aircraft maintenance officer provide support in combat is being jointly developed by the Transportation School and the Applied Technology Laboratory, U.S. Army Research and Technology Laboratories (AVRADCOM). This program is the Aircraft Combat Maintenance/Helicopter Battle Damage Repair Program.

The program being developed deals with three operational issues:

- **Methodology:** The inspection, assessment and repair of damage or failures which occur in combat.
- **Materiel:** Stockage of repair parts, use of cannibalization, tool requirements and elapsed repair time targets.
- **Manpower:** Deals with training of assessors and repairmen, specialization of assessors and repairmen, and possible use of National Guard personnel. The purpose of the Aircraft Combat Maintenance/Battle Damage Repair Program is to provide engineering data and a scientific approach to quick-fix repairs which will safely put aircraft back on the battlefield in an expedited manner.

The main repair targets for the program are:

- Structures assessment and repair
- Serviceability criteria guides
- Wiring inspection and repair techniques
- Cannibalization techniques
- Tools and ground support equipment
- Assessment techniques
- Fuel cell repair
- Fluid line and tubing repair

Based on present-day doctrine and developing concepts for future battlefields, there are a few principles of aviation maintenance which I think AVUM platoon leaders can practice today. These principles are:

- Priorities for repair are set by the unit commander based on aircraft requirements for the battlefield.
- Aircraft maintenance in combat will result in shortages of personnel, repair parts and aircraft. *Intensive* maintenance management is a must.
- Crosstraining of specialty skills will help ease personnel shortages.

- Repairs must be completed as far forward as possible with maximum use of contact teams.
- AVIM support should be in the form of contact teams as often as possible. These teams will also repair as far forward as possible.
- Cannibalization will be a key element in maintaining a maximum number of mission-capable aircraft.
- Quality control and technical inspection requirements must be based on achieving minimum safe standards rather than on "like new" repairs.
- AVUM platoons should travel as light as possible to meet mobility requirements.
- AVUM platoons must be prepared and equipped to rig downed unit aircraft for aerial recovery.

Training is an area where the finely developed imaginative talents characteristic of all aircraft maintenance officers will be used to the maximum extent. Doctrine is not clear in this area, so we must simply train to meet expected combat requirements.

Any talk of training must be prefaced by a hard but true fact. Most aviation unit commanders don't want AVUM platoons to train, they want AVUM platoons to maintain. To have a valid training program, AVUM platoon leaders must convince their bosses that the AVUM platoon has to have dedicated time for training, particularly during field training exercises. AVUM platoons can't go to the field just to support everyone else's training. This will mean a reduction in flying hours or aircraft availability but it is the price of a truly combat effective aviation unit. *Good luck!*

The most unpleasant, and generally the most neglected, areas of training concern defending the platoon and working in a nuclear, biological, chemical (NBC) environment.

In combat, the personnel of the AVUM platoon will be required to provide their own protection. Threat forces realize the importance of rear area elements, particularly aviation units, and plan on attacking these elements to reduce the sustainability of combat forces. There will not be enough combat forces available for the battlefield, so combat forces dedicated to rear area security are very doubtful. Aviation units, including the AVUM platoon, must be trained in active and passive defense measures. These tasks must be practiced in the field environment.

Aircraft maintenance operations cannot stop when NBC agents are introduced into the rear areas. This makes the performance of maintenance in protective overgarments or MOPP (mission oriented protection posture, or chemical gear,) a requirement. Personnel of the AVUM platoon have to be trained in the areas of first aid, NBC protective measures and decontamination. The confidence builder for this training is actually performing maintenance, for extended periods of time, under simulated NBC conditions. This type of activity does not have to take place in the field. The hangar provides a suitable training area, especially until maintenance crews become accustomed to working in overgarments.

Now let's look at some pleasant activities in maintenance training for combat. First, until the AVUM platoon has mastered all other skills, *leave scheduled phases at the hangar!* The completion of phase maintenance is fairly routine. Also, maintenance flow should not be sacrificed by practicing an activity which will be low in priority in intense combat. A small phase team left working in the hangar can make a big difference to availability when the field training exercise is over. For field training, concentrate on unscheduled maintenance and on exercising the ability of the component and airframe repair sections to make specific repairs. Known deficiencies should be programed for repair under field conditions. This enables the AVUM platoon leader to test the abilities of shop sections and specific repairmen to complete repairs under conditions of limited time and resources.

Simulated or actual recovery of downed aircraft should be practiced. Recovery operations must include the rigging of aircraft to be evacuated as external loads. The actual evacuation of flyable aircraft isn't recommended unless aircraft availability is particularly high and you have a very understanding chain of command.

The capability of the AVUM platoons to work with tool sets which are to be taken into combat must constantly be tested. This can be accomplished at the hangar or in the field. Realistic capabilities for support out of issued tool sets must be known. The same applies to the ability of the prescribed load list (PLL) to support normal operations. Once the PLL is tested, the need for cannibalization techniques and control programs may be viewed as more important.

The foregoing has been an attempt to encourage AVUM platoon leaders and all aircraft maintenance personnel to conduct day-to-day operations and to plan training with combat in mind. Division 86 may usher in newer ideas and units with different structures, but we can use the new concepts with our present organizations to ease the transition. The next war may not be in line with the Division 86 timetable.

Real life dictates "fix that aircraft now," but aviation maintenance will be critically important in future combat. We must perform maintenance each day in a manner which will enable us to provide the aviation unit commander with the maximum number of aircraft during combat.

Don't Wear Black Hats

Betty J Goodson
Staff Writer

WAR IS HELL—and the possibility that rounds may be called for and fired at a compatriot or an ally increases its horror.

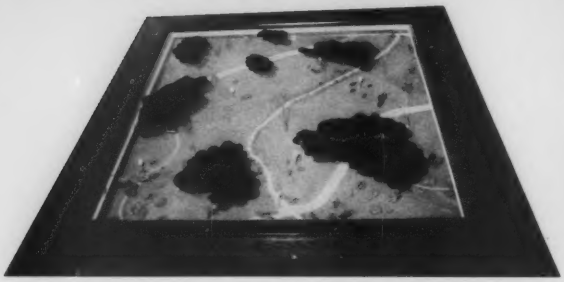
To help Army aviators learn to distinguish a friend from a foe, identification of ground targets is taught at the U.S. Army Aviation Center, Ft. Rucker, AL, by the Tactics and Strategy Branch, Career Training Division, Department of Academic Training in the Directorate of Training and Doctrine. Students in almost every Aviation Center course receive this special block of instruction.

It is conducted in the "threat room," a unique training area that has been specifically tailored to make the enemy as real as possible to the students. The room is often shown to the installation's distinguished visitors; and ideas from it have been adopted for use at other posts after visiting commanders saw the Ft. Rucker design. Such interest is expressed because Army commanders at all echelons appreciate the importance of target identification.

The proliferation of equipment on tomorrow's battlefields will mean that Army Aviation helicopter crews won't usually have any difficulty finding something to train their sights on, but the identification of that target will be a problem. That means a vital part of preparing for war—and that's the ultimate challenge—is learning to recognize the enemy. Evaluations show students' preparation for that aspect of battle improves at least 80 percent by the time this course is completed.

Subjects covered in the 17 hours of instruction are threat, target identification, electronic warfare, and combat, airmobile and air defense operations.

photographs by Joe Lolley and Charles Duckett



The military vehicles Captain John Farris is viewing in the Rasnick Box will become more difficult to see and identify when Captain Michael Dannaker places a plastic "cloud" over the terrain board. A training aid used in the threat room at Ft. Rucker, AL, the Rasnick Box was developed by a former instructor in the target identification course that is taught to Army aviators

Training aids in the threat room include:

• The Rasnick Box (developed by a former course instructor). It contains a terrain board with models of ground vehicles, and looking through slits in the sides of the box gives students a view of the "ground" similar to that of flying at treetop level. The numbered vehicles have to be matched with identifying nomenclature on a chart. Instructor Captain Stephen Reinhart stressed that selecting the correct identity for the vehicles is not easy but that most students improve "normally about 100 percent" by the end of the training session.

• Panzer Game, a commercial product that has been modified to have the charcteristics of an AH-1 Cobra's front seat. NATO and Warsaw Pact vehicles move in and out on the battlefield the player sees through the viewfinder. The "Cobra's" armament includes TOW missiles and a machinegun. Hits on threat vehicles cause a red flash and an explosion and win points. Silence follows a hit on a friendly target. Game time is 60 seconds. If 200 points are scored in that time, the student gets another half minute.

• Target identification boxes. On these the students pair nomenclatures with pictures. A wrong choice is announced to the world by a strident buzzer.

• A mural depicting an AirLand Battle shows in scale size a variety of military vehicles, weapons and aircraft. Students' alertness is checked to see if they can find the items that do not belong in the depicted scene, such as an Indian scout on a church steeple, a periscope breaking the river's surface and a World War II tank.

Taking careful aim at threat vehicles is Captain Marline Johnson, an instructor in the target identification course at Ft. Rucker, AL. The training aid he is using is a Panzer Game that fires armament like the AH-1 Cobra helicopter, and the game's screen reflects both NATO and Warsaw Pact targets

The training aids perform double duty, Captain Reinhart said, in that they are used during breaktime as well as in classtime.

"Some students at the beginning of the course will act as if they believe this is just another gameroom. By the time they've been in it a few hours, though, and begin to realize what all is out there that they will have to face in combat, all of

ABOVE: By pairing nomenclatures with pictures, students learn tactical vehicle identification with this training aid

LEFT: A display of Soviet small arms in the threat room at Ft. Rucker, AL, is used to teach students the lethality of these weapons. Also helping Army aviators to acquire target identification skill are the pictures of enemy equipment that line the classroom's walls.

them buckle down to the job of learning," he claimed.

Just how thorough that learning has to be is emphasized by Captain Marline Johnson's observation about the shape of things to come:

"We anticipate the identification problem is going to be compounded by artillery fire's ability to change the shape of a piece of equipment. When a tank, for instance, has been through an artillery barrage, it takes on different characteristics and won't present the nice outline that has been learned here in the classroom. That's why it is so necessary that this threat identification information be absorbed as thoroughly as possible," the instructor said.

The instructors' need for thoroughness matches that of the students. Others who share the teaching responsibility in the threat room are Captains Dale Keen, George Vidal, John Farris, Michael Dannaker, Lewis Davidson, Jose Casablanca, William Danzeisen and Frederico Gomez.

They know that the crew of an M1 tank may live tomorrow because an OH-58 scout pilot in their class today learned the difference between the M1 and a Russian T64 tank.

Instructors of the Tactics and Strategy Branch, Career Training Division, Department of Academic Training, Ft. Rucker, AL, plan how they will use the threat room's AirLand Battle mural in their target identification class. They are, from left, Captains Jose Casablanca, John Farris, Michael Dannaker and John Fabry

MONTHLY WRITING AWARD

NUCLEAR BIOLOGICAL CHEMICAL

THE CHEMICAL ENVIRONMENT AND ARMY AVIATION

CW2 Thomas E. Whitson
A Co, 82d Aviation Battalion
Fort Bragg, NC

WHEN YOU mention flying in a chemical environment to your buddies in the club, does the laughing and joking stop? Do things get quiet? Does everyone turn and walk away? Or, have you ever suggested that for next week's mission one pilot in each cockpit stop by the NBC room to draw his M24 protective mask to wear and have all of the pilots boo and hiss at you? Sound familiar?

In my unit flying with the M24 mask on is not popular, and for obvious reasons. But if you watch the news on television or read the newspaper you'll know that suspected chemical use is on a rapid increase around the world. So, are you ready to fly and fight in this environment of chemical and biological warfare? I know many Army aviators who have a hundred excuses as to why they shouldn't train with the M24 mask:

- *It's too hot and I'll get a headache.*
- *The face piece is curved and distorts my view.*
- *The NBC room was closed.*
- *I'll wait until the Army issues me a more comfortable mask and suit and then I'll really train.*

These attitudes reflected above are extremely dangerous! Let me share a brief experience with you.

Awhile back when I was a new guy in the unit, we were in the pilot's briefing room getting ready to fly a multiship airmobile raid when the commander walked in and said, "All right gents, my jeep and the trailer just pulled up and in the back are masks and MOPP gear, one for each aicrew; and you PICs will ensure that one of the pilots in each aircraft has his gear on at all times."

I wasn't a PIC so guess who got to wear the protective equipment in my aircraft? As we were walking out to the helicopter I was mumbling under my breath and the PIC just laughed and said, "Well, when you make PIC, just think you can make your copilot wear the MOPP gear."

So things weren't too bad; I slipped into my pants, zipped up the jacket, climbed aboard the aircraft. The OAT gauge read only a mere 38 degrees Celsius.

We finally got the aircraft cranked and off. We were chalk number three in two flights of four. It didn't take long and I was pulling at the mask trying to reposition the hot spots on my head which I knew was inevitable when trying to wear the protective mask with the SPH-4 flight helmet. Every time I would talk, the PIC kept saying "Huh? Huh?" I guess I sounded like I was inside a paper bag.

Eventually, the mission was over; we had just picked up the troops from their raid and we were on our way home. Anxious to get my mask off I started to unsnap my helmet when the commander came across the radio and said, "Don't anybody take their masks off, because instead of returning to the airfield, we are going to stop at a field decontamination site and all aircrews will observe aircraft and personnel decontamination."

It was at this point that I began to respect what the commander was trying to do for us. When you least expect it, you could be deployed into an area where chemicals are in use. Will you be ready?

At the installation where I'm stationed, the troops are constantly engaged in viable NBC scenarios. Put yourself in their shoes, and imagine the following scenario: You've trained hard at your job and you're riding in the back of a helicopter, knowing exactly what has to be done when you get to your destination. You look around and each member of your squad looks eager to get on the ground and go about the mission. Then, you look forward and neither the pilot nor copilot has a protective mask on, because they're chalk number four in a flight of five and they know if flight lead runs into anything he'll be sure to call back and let the rest of the formation know what is going on. Even though chemical warfare has not been forecast in this small country, you and your squad are not taking any chances—you've got your stuff on.

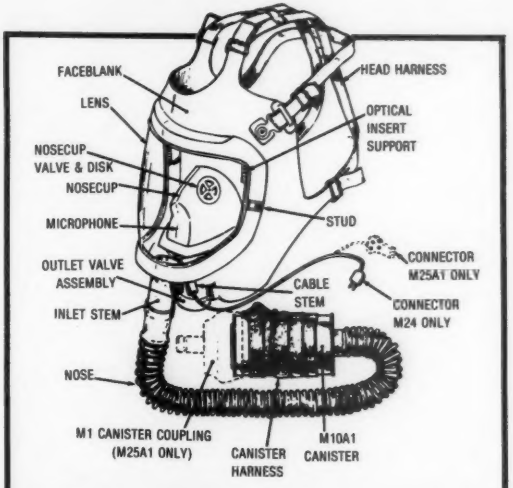
Suddenly the aircraft flying NOE blunders into an invisible toxic agent cloud. First, one pilot starts to twitch; the other grabs for his mask. Who's got the controls? Then, both pilots are twitching while you and your squad are sitting there knowing that with two incapacitated pilots the aircraft will soon crash.

The Result: Two dead pilots, a totally destroyed helicopter and 10 dead INNOCENT passengers. Will this story be yours? Whether you're a scout, attack, heavy lift or even a fixed wing pilot it doesn't take much of an imagination to come up with a similar accident with equal or greater devastating results. On the modern battlefield no one will be impervious to the chemical attack.

As a professional aviator you have an obligation to yourself, your aircraft and those you support to be ready for this insidious monster called chemical warfare. I appeal to you, the NBC officers and unit commanders to get together and set up good, sound, viable training programs for your aircrews. Aviators in general will not individually participate in volunteer NBC training. This is why a program set up by commanders must stipulate mandatory participation and be closely monitored by experienced NBC personnel, or all effectiveness will be lost. Only you, the aviator, know your degree of individual chemical warfare preparedness. If you feel your unit's NBC training falls short of your desired goals get with your unit's training and NBC officer and schedule this much needed training.

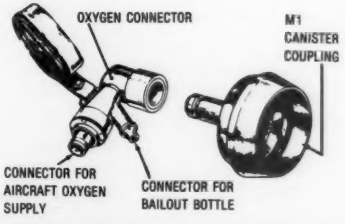
As a key element in the combined arms team we aviators must be ready at any time to fly and function effectively in this type of environment. So don't wait for the weather to turn cool or worry about headaches and by all means don't wait for the Army to issue you that nice new comfortable mask and protective suit. Start Training Now!

Remember an ounce of prevention is worth a pound of cure, only in this case there may be no cure.



M25A1 (armor)/M24 (aircraft) oxygen mask

The M24 (aircraft) mask has an oxygen supply adapter that is used by aircraft personnel to connect the mask to the oxygen supply system of the aircraft or to an oxygen bailout bottle. The oxygen flows through the adapter's canister and hose into the facepiece of the mask.



PEARL'S

Personal Equipment And Rescue/survival Lowdown

Elaine Chiboucas photo by Tom Greene

Catch For SPH-4 Helmet Earcup Tension Assembly

Dear PEARL: We recently requisitioned some cross straps, earcup tension, NSN 8415-00-410-4661, and did not receive any "catches" with them. Should the catch be furnished with the strap assembly and is there an NSN for the catch?

PEARL is always happy to help. Since other life support personnel may be faced with similar situations we are furnishing the following information:

The catch does not come with the earcup strap assembly. However, there is an NSN assigned. The P/N in question is Natick Dwg 5-2-516, Item 13 and has an NSN 8415-00-169-6436, RIC is S9T. Suggest you make a note of this item since it does not appear in the technical manual for the helmet but hopefully we are not too late to get it in the next revision.

Suit, Chemical Protective (CP) Overgarment

Stocks of subject item, size XXXS, NSN 8415-01-070-1880, are exhausted. Stocks are available for size XXS, NSN 8415-01-070-1879, but it is anticipated that an out-of-stock position will be reached soon. Further procurement of these sizes is pending adoption of the new battledress overgarment. All requisitions routed to S9T for out-of-stock sizes will be rejected with status code "CA." Size substitutions should be used where possible.

Antiexposure Suit, Sizing

Several inquiries have been received as to how the size of the antiexposure suits described on the back cover of the October issue of the *Digest* relate to the individual's size. The person who is to wear the antiexposure assembly must be properly fitted with the correct size of the CWU-21/P—CWU-21A/P coveralls and CWU-23/P liner in accordance with the following table extracted from TO 14P3-5-81:

Size	Height (Inches)	Weight (Pounds)	Chest Circumference (Inches)
1	63-66	125-149	32-36
2	66-69	125-149	32-36
3	69-72	125-149	32-36
4	64-67	150-174	37-40
5	67-70	150-174	37-40
6	70-73	150-174	41-44
7	66-69	175-199	41-44
8	69-72	175-199	41-44
9	72-75	175-199	45-47
10	67-70	200-224	45-47
11	70-73	200-224	45-47
12	73-76	200-224	45-47

TS-24B Survival Radio Tester

Under the PEARL article in the July 1982 *Aviation Digest,* we mentioned survival radio test equipment which the USAF has been procuring for its aviation life support equipment shops. Unfortunately at the time this equipment became available we did not have the national stock number (NSN). So, we are giving it to you in this article. The NSN is 6625-01-128-8588 and the tester is managed by the Air Force at Kelly AFB, San Antonio, TX. However, this test set has not been adopted for Army use at this time.

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120 or call AUTOVON 693-3307 or Commercial 314-263-3307

REPORTING FINAL

Late News From Army Aviation Activities

photo by SP4 Yvonne Lugo

First black female flight surgeon, MAJ Rose Fitchett of Ft. Meade, MD, enters her final flight hour in a logbook aboard a TH-55 Osage helicopter after completing her solo flight recently as part of the Flight Surgeon Course at Ft. Rucker, AL. She is the first black female doctor to graduate from the course

FROM FORT RUCKER

D Model Chinook at Rucker. The first CH-47D model Chinook helicopter is now in the inventory at the Army Aviation Center.

Major General Carl H. McNair Jr. received the logbook and keys to the remodeled troop/cargo-carrying aircraft from Colonel Dewitt T. Irby Jr., the CH-47 modernization program project manager, Tuesday, 7 December.

The aircraft was a 1967 A model that accumulated 2,000 flight hours in the Vietnam War and 4,000 total flight hours.

Boeing-Vertol Helps Museum. Boeing-Vertol, Philadelphia, PA, has given $10,000 to the Army Aviation Museum Foundation. William P. Jones, the company's director of military programs, presented the gift which raised the total of cash and pledges to more than $900,000 in the foundation's drive to build a new museum at the Army Aviation Center. **(USAAVNC PAO)**

FROM FORT HUACHUCA

Future Warrants. The first selectees for the new air traffic control warrant officer program, MOS 150A which opened in 1982 for qualified enlisted persons, have been named:

Richard T. Wallach, Eddy O. Carter, James A. Leonard, John R. Berning, James W. Hartsfield, Michael J. Flynn, Eric P. Pearson III, Terry Van-Steenbergen, Richard R. Neher, Michael A. Mansfield, Martin B. Hammel, Wesley Campbell Jr., Layman Johnson, Barrie Barnes, Harold A. Waldrup, John B. Adams, James B. Faux Jr., Benjamine Sweatland, Robert T. Schwegel, James M. Shields, Anthony E. Johnson, Alfonso G. Reyes, William Hasbrouck, Roger D. Sigmon, James M. Walker, David R. Doyle, Douglas E. Pabst, Thomas O. Mosley, Douglas J. Hadler, Johnny R. Stewart, Clyde W. Ireland, Louis S. Roach Jr., Pierre J. Riopel and Don A. Roberts. All will have to attend the Warrant Officer Basic Course at Ft. McClellan, AL, before appointment. **(Hinton, USACC)**

FROM VIRGINIA

Flight Training Openings. Approximately 80 openings are available in the Army's initial entry flight training program this fiscal year for qualified commissioned officers currently on active duty. Qualifications include having less than 48 months of active federal commissioned service, passing a Class 1A flight physical and scoring a minimum of 90 on the Flight Aptitude Selection Test (FAST). Selection board meeting dates for FY 1983 are 1 April and 1 July.

Applications should be submitted through command channels to:

Commander
U.S. Army Military Personnel Center
ATTN: DAPC-OPE-V(for SC 15—Aviation)
or
DAPC-OPG-T (for SC 71—Aviation)
200 Stovall Street
Alexandria, VA 22332

More information is contained in AR 611-110, "Selection and Training of Army Aviation Officers." **(MILPERCEN)**

The Army's last U-1A Otter is now at the Army Aviation Museum, Ft. Rucker, AL. Formerly used by the Army's Golden Knights Parachute Team, the aircraft was flown to the museum by LTC William C. Childree, second from right, and Wilburn A. James, second from left. At left is James G. Craig, assistant curator of the museum; and at right is CW4 Michael J. Novosel who flew the Otter when he was a team pilot. LTC Childree, Mr. James and CW4 Novosel are assigned to Ft. Rucker's Directorate of Evaluation and Standardization

photo by SP4 Yvonne Lugo

Alaskan Skymasters

222d Aviation Battalion

SPA Mary Henderson
Public Affairs Office
Fort Erwin, CA

Illustration by Paul Frets

WHEN IT COMES to providing aviation support for the 172d Infantry Brigade (Alaska), the job falls largely to the pilots and crews of the 222d Aviation Battalion, headquartered at Ft. Wainwright.

Composed of four companies and a detachment, the 222d "Skymasters" have a mission as varied and challenging as the environment in which they operate.

The Skymasters' Headquarters and Headquarters Company (HHC) not only provides the normal command and control functions, but the "Ramrods" also have the additional mission of providing air assault capabilities for 172d units stationed north of the Alaskan Range. The unit uses 11 UH-1H Hueys and 4 OH-58 Kiowas in accomplishing its task. In addition, the HHC, 222d flies two C-12 Huron airplanes for courier support to the 172d Infantry Brigade.

Located 350 miles away from its battalion headquarters, the 120th Aviation Company provides the primary lift capability for the three infantry battalions within the 172d Light Infantry Brigade. With their 22 UH-1Hs, the "Arctic Knights" provide tactical air movement of troops, supplies and equipment throughout the Alaskan command.

Sixteen CH-47C Chinooks make the "Sugar Bears" of the 242d Aviation Company the prime logistics supporters of the 172d Brigade. In addition to being the only feasible method of moving elements of the 1st Battalion, 37th Field Artillery, the 242d provides general mobility and materiel movement support to the brigade.

Moreover, the 242d also plays an important role in fighting tundra fires within Alaska with their firefighting capabilities coming from slingloaded 1,000-gallon fire buckets.

A peacetime priority for the unit is the rescue and assistance it renders to climbers in distress and victims of aircraft accidents. With 10 specially modified Chinooks, the 242d's High Altitude Rescue Team (Hart) has been credited with saving more than 42 lives since the team's inception in 1976, including a rescue at the 18,300 foot level of Mount McKinley (see "McKinley Rescue," next page).

The 283d Medical Detachment provides medical evacuation service to the brigade as well as Military Assistance for Safety and Traffic (MAST) to the civilian community within 129 nautical miles of Forts Wainwright and Greely. The six UH-1V Huey air ambulance aircraft have completed 695 medevac and 172 MAST missions since October 1979.

Keeping the 172d Infantry Brigade's aircraft flying is the job of the 568th Transportation Company's "Old Dukes." The unit provides aviation intermediate maintenance support to the brigade's aviation units and also to those belonging to the Alaska Army National Guard and the National Oceanic and Atmospheric Administration.

McKinley Rescue

CW3 (P) Richard M. O'Connell
Instructor, Rotary Wing Instrument Branch
Directorate of Training and Doctrine
U.S. Army Aviation Center
Fort Rucker, AL

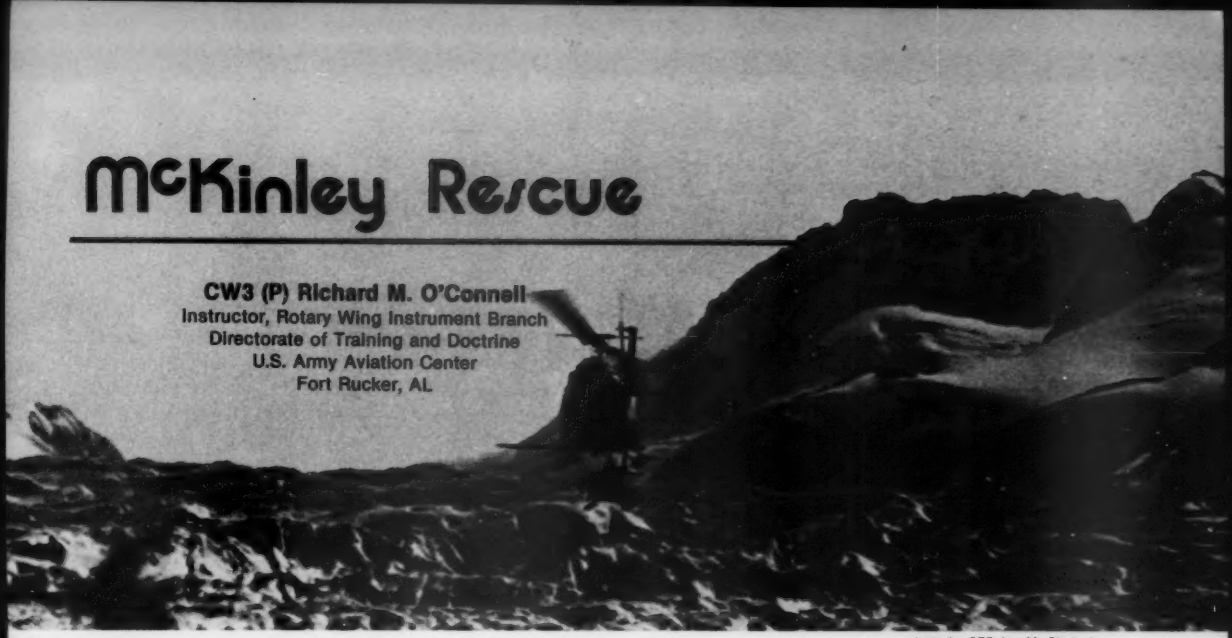


photo by SP5 Jon M. Chelgrin

IT WAS JUST a few short hours since the team leader first radioed the ranger at McKinley Park, AK, telling him the climbing team was in trouble and would need help getting off the mountain. The park ranger's promise of help was reassuring, and with nothing to do now but wait, the climbers began recounting how they came to be in their predicament.

It seemed to the climbers as though they had been on the mountain for an eternity, instead of the just over 3 weeks that passed since the beginning of their assault on McKinley. Incessant cold, high winds, poor weather and just plain bad luck exacted their toll. What was to have been an enjoyable ascent of North America's highest peak instead turned into a survival situation with one climber seriously injured and others incapacitated with frostbite and altitude sickness.

First, there was the seemingly endless storm, its howling wind and bitter cold had weathered them in at the 14,000-foot level of the mountain for more than a week. When the skies finally cleared and the climb resumed, one of the team members began to complain of light headedness and a tightening of the chest. The symptoms were passed off at first, but by the time the team reached 17,000 feet it was apparent that the climber had contracted altitude sickness and could go no farther. A council was held that night, and the decision was made for two climbers to make a dash for the summit while the rest of the team remained at the base camp with the sick friend. The following morning the two struck out from the base camp. They were traveling light, carrying only what they would need to get to the summit and back again to the base camp. At first all went well. Without all their cumbersome gear to slow them, the climbers made short work of the last 3,000 feet of the mountain. At the summit they laughed, took pictures and felt as though their luck finally changed.

It was on the descent that disaster struck. One of the climbers lost his footing, fell and apparently broke a leg. While administering first aid to his injured friend the second climber contracted frostbite. Through shear willpower the two somehow managed to get back to the base camp, but in doing so they reached the limit of their endurance and could go no farther. So it was, that they had come to wait for the help they very much hoped was on its way.

Before long they spotted an Air Force HC-130 orbiting the mountain. Dispatched from Elmendorf AFB, the aircraft contacted the members of the climbing team by radio, asked if they were in immediate need of any additional survival gear, ascertained conditions at the base camp and assured them help was on the way. For the first time since the ordeal began the climbers began to feel a ray of hope.

Shortly after the appearance of the HC-130 the climbers heard the unmistakable sound of a helicopter.

McKinley Rescue

Racing out of their tent, they saw a large twin rotor, red and white helicopter approaching the base camp area. As they watched the helicopter land, it disappeared in a large white cloud of powdered snow which was generated by its rotors. From this white cloud emerged two figures with a Stokes Litter moving toward the climbers. When the two figures reached the climbers they went about their work quickly and before long the team was onboard the helicopter and en route to safety.

The account you have just read, a composite of several rescues accomplished during a 3-year period, is all too typical of the type of situation the 242d Aviation Company at Ft. Wainwright, AK, encounters when fulfilling its mountain rescue mission in the state of Alaska. How the 242d Aviation Company came to be involved in this mission and how it prepares and trains for it is the subject of this story.

Search and rescue operations normally are a U.S. Air Force responsibility and operations in Alaska are no exception. In Alaska, search and rescue operations are controlled by the Rescue Coordination Center located at Elmendorf AFB. However, due to Air Force equipment constraints, the 172d Infantry Brigade (Alaska), through an agreement with the Air Force, is responsible for all helicopter rescue operations above 10,000 feet within Alaska.

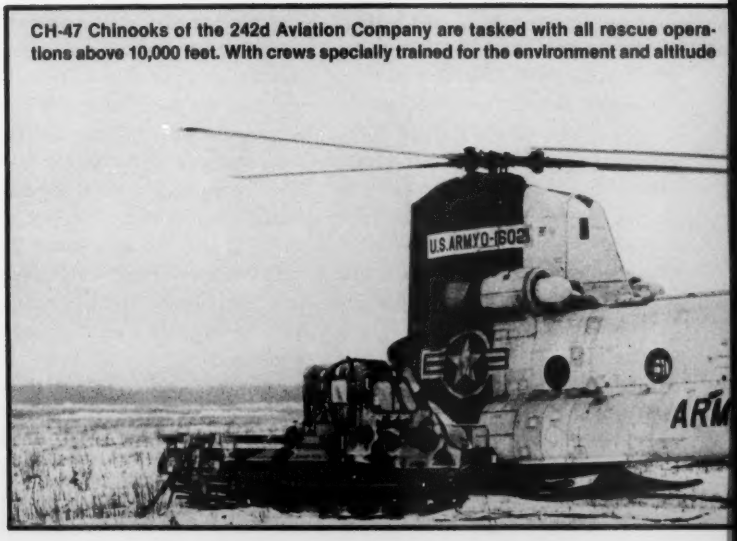
The 172d Infantry Brigade has tasked the 242d Aviation Company, with its CH-47C Chinook helicopters, to maintain this mountain rescue capability on a year-round basis. Further, during the normal summer climbing season, late April to mid-August, this capability is put on a standby status to reduce reaction time.

The 242d Aviation Company's first encounter with mountain rescue operations was in 1974 when an Army U-8 aircraft crashed on Mt. Sanford, a14,000-foot peak in central Alaska. Using an improvised oxygen system, the unit's aircraft assisted in search efforts on the mountain's upper levels. From this modest, unexpected beginning the unit began developing a program to train aircrews in the techniques required to successfully conduct high altitude mountain rescue operations in Alaska.

To fulfill its mission the 242d Aviation Company uses CH-47Cs that have been equipped with an integral oxygen system and modified so that both of the aircraft's flight boost hydraulic systems are pressurized. With these modifications the unit's aircraft have been cleared to altitudes of 22,000 feet for en route purposes and landing may be attempted up to 20,000 feet.

Crewmembers use standard Army issue flight gear for all operations. This gear is supplemented with some commercial gear for mountain survival and peculiar items required for the mission such as jungle penetrators and Stokes Litters.

Training to qualify or refresh unit aircrews is conducted annually. The process begins with 13 hours of classroom academics. During the academic training phase aircrews review aerodynamics, flight phys-



CH-47 Chinooks of the 242d Aviation Company are tasked with all rescue operations above 10,000 feet. With crews specially trained for the environment and altitude

iology, emergency procedures, critical conditions, mountain survival, aircraft oxygen systems, hoist operations and other selected subjects.

After completing the academic training phase the unit conducts flight training around and on Mt. McKinley. *Flight training consists of a miminum* of 5 flight hours on the mountain. During training, aircrews work on refining crew coordination while practicing operations at the 14,300 foot level of the mountain's West Buttress and later at the 15,500 foot level on Harper's Glacier. It should be stressed that the primary goal of this training is to make the aircrews as comfortable as possible with their tasks, regardless of the flight hours required.

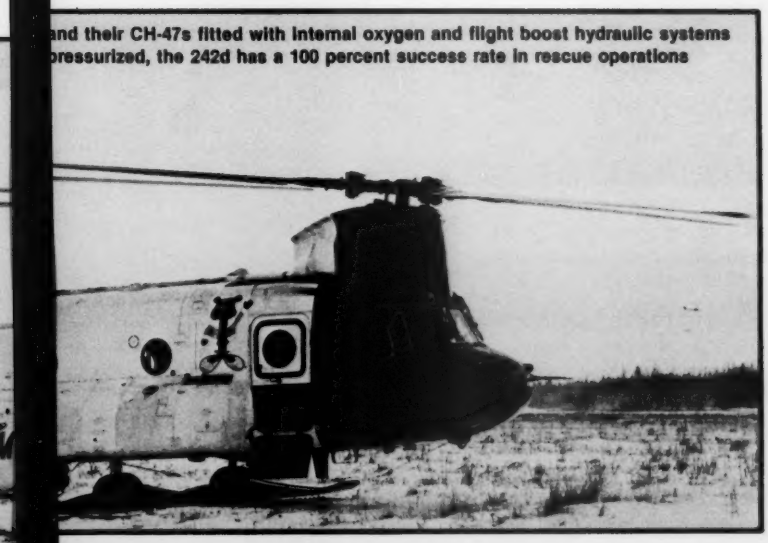
Now that we have a little background information, let's look at the conduct of an actual rescue mission. Initial notification of the need for help comes to the Air Force Rescue Coordination Center located at Elmendorf AFB. The Rescue Coordination Center processes the request and if the rescue mission is above 10,000 feet, the center notifies the 172d Infantry Brigade Command Operations Center of the need for Army helicopters.

If the rescue is above 14,000 feet the Command Operations Center is required to get the personal approval of the Brigade Alaska commanding general. This done, the next step is to notify the 242d Aviation Company through its parent unit the 222d Aviation Battalion. After notification, the unit launches two CH-47s, one aircraft is the primary rescue aircraft and the other acts as a chase aircraft in the event anything goes wrong while the aircraft are on the mountain. The two aircraft normally proceed to an airfield at Talkeetna, AK, where they meet Air Force pararescue personnel of the 71st Aero Rescue Squadron from Elmendorf AFB. They then proceed to Mt. McKinley.

The preferred method of rescue is to air-land as close as possible to the rescue sight and have pararescue personnel assist the climbers onto the aircraft. In some instances this method is not possible, and the crew must rely on the aircraft rescue hoist. This method is avoided if possible because of the more critical nature of hoist operations at high altitudes.

After the rescue has been accomplished a decision is made as to whether the rescued people will be flown directly to an Anchorage hospital or returned to Talkeetna for further transportation by a 71st Aero Rescue Squadron H-3 helicopter. Once the mission is complete the two CH-47s normally return to Ft. Wainwright and resume their standby duty.

Since being formally tasked for mountain rescue work in 1976, the 242d Aviation Company has compiled an enviable track record in this hazardous line of work. To date the unit has rescued 41 climbers. It has conducted air-land rescue operations as high as 18,200 feet and has conducted rescue hoist missions as high as 16,000 feet. Most important, though, is the fact that through its dedication to mission accomplishment, the 242d Aviation Company has achieved a 100 percent success rate on assigned missions to date.



and their CH-47s fitted with internal oxygen and flight boost hydraulic systems pressurized, the 242d has a 100 percent success rate in rescue operations

Improving Pilot Judgment

Jerome I. Berlin, Ph. D.
Embry-Riddle Aeronautical University

THE PERCENTAGE of aircraft accidents attributable to poor judgment varies according to the definition of "judgment," but in any case there is common agreement that it's very high. Often aviation professionals have expressed a need to develop an effective training program which would improve the judgment process. In 1978 my colleagues and I, working under an FAA contract, commenced an effort to develop a training program and materials to do just that. Our general objectives were:

- To produce a program that was practical, easily applied and effective in producing the desired response from the students. The contracting office of the FAA specifically discouraged the use of elaborate training aids such as audiovisual materials and simulators.
- To design the program so

that it would achieve meaningful integration into the present FAA approved ground and flight school curriculum without unduly increasing the training time required to obtain a private pilot license.

- To increase the student pilot's knowledge and understanding of himself by teaching him to better recognize and identify hazardous human behavior patterns.
- To teach the student pilot to recognize, analyze and evaluate factors which influence judgment in regard to safe flight.
- To train the student pilot to recognize and to cope with potentially hazardous conditions such as the presence of hazardous thinking, poor judgment chains and high stress.
- To introduce positive changes into the flight instructor's own teaching behavior and attitudes.

One of the reasons that this type of training had not often been attempted was that there was no agreement or even a definition of pilot judgment. Everyone used the word but there were many subjective meanings. Before developing the essential concepts of the training we developed a definition of the term which we felt could be operationalized and then measured. It is that:

Pilot judgment is the mental process by which the pilot recognizes, analyzes, and evaluates information regarding himself, the aircraft, and the outside environment. The final step in the process is to make a decision pertaining to the safe operation of the aircraft and to implement the decision in a timely manner.

Thus, it can be said that if a pilot properly recognizes, analyzes, and evaluates the factors, and subsequently makes the "proper" decision and implements it in a timely manner, then he or she exercises *good* judgment. If he or she does not properly recognize, analyze, or evaluate the factors, and subsequently makes a poor decision which leads to "improper" or untimely action, then he or she has exercised *poor* judgment. In order to modify the student's behavior, we deemed it necessary to develop many new terms and concepts, the goal being to make change in judgment behavior a more rational and understandable one. Here are a few examples of these concepts.

The three subject areas

Each poor choice in judgment made by the pilot can be categorized to involve one or a combination of three specific subject areas: the pilot himself (Pilot), the aircraft and its subsystems (Aircraft), and the outside environment (Environment).

1. The *Pilot* subject area concerns the pilot's state of health, competency in a given situation, level of fatigue and any other factors that may affect his performance.
2. The *Aircraft* subject area includes consideration with respect to the aircraft's airworthiness, its powerplant, and its equipment as well as performance criteria such as weight and balance and runway requirements.
3. The *Environment* subject area concerns not only items such as the weather, takeoff conditions, airfield altitude and temperature, but also outside information inputs such as weather briefings (or lack thereof), ATC instructions, and other considerations.

The six action ways

Nearly 600 NTSB accident briefs were examined to determine how pilots carry out their judgments. It became obvious that pilots implemented their decisions in six ways, and that these "action ways" could be grouped in three pairs:

1. *Do - no do*
2. *Under do - over do*
3. *Early do - late do*

The action ways are defined as follows:

1. *Do:* The pilot did something he or she should not have done.
2. *No do:* The pilot did not do something he or she should have done.
3. *Under do:* The pilot did not do enough when he or she should have done more.
4. *Over do:* The pilot did too much when he or she should have done less.
5. *Early do:* The pilot acted too early when he or she should have delayed acting.
6. *Late do:* The pilot acted too late when he or she should have acted earlier.

Then there is the concept of the poor judgment behavior chain. There are three essential subconcepts:

1. One poor judgment increases the probability that another poor judgment will follow. Since judgments are made on information about oneself, the aircraft, or the environment, the pilot is more likely to make a poor judgment if the input factors are not accurate. One poor judgment provides an erroneous bit of information which the pilot must consider when making subsequent judgments.
2. As the poor judgment (PJ) chain grows, the alternatives for safe flight decrease. It is *a given fact* that if a pilot selects one

alternative among several, the option to select the remaining alternatives may be lost. For example, if a pilot makes a poor judgment to fly through a hazardous weather area, the alternative to circumnavigate the weather is lost once severe weather is encountered.

3. The longer the PJ chain becomes, the more probable it is that disaster will occur. As the PJ chain grows longer, fewer and fewer alternatives for safe flight are available to the pilot. As the alternatives for safe flight become fewer, the greater the chance becomes that an accident will occur.

Studies have concluded that certain thought patterns lead to irrational pilot judgment. We attempted with the assistance of other psychologists and sociologists to identify the most prominent of these hazardous thought patterns. They are:

1. *Anti-authority.* This is the thought pattern found in people who resent the control of their actions by any outside authority. The general thought is "Do not tell *me!* No one can tell *me* what to do." A person having this thought will disregard rules and procedures if they prevent him or her from doing things his or her own way. They might ignore a parking sign (Do not tell *me* where to park!) or not follow the prescribed preflight checklist (Do not tell *me* what to do to get my aircraft ready to fly!). The key to the behavior is that the person is resentful of established rules, regulations, and procedures, and will tend to ignore advice, even though it is well founded.

2. *Impulsivity.* This is the thought pattern found in people who, when facing a moment of decision, feel that they must do something and do it quickly. This thought is characterized as "Do something—quickly!" The person having this thought does not stop to think about what to do, does not explore the implications of what he or she is about to do, or does not examine a set of alternatives and select the best one. This person simply does the first thing that comes to mind.

3. *Invulnerability.* This is the thought pattern of people who feel that nothing disastrous could happen to them. The thought is characterized by the statement, "It won't happen to *me!*" They know that disasters happen, but never feel that they will be directly affected. People who think this way are more likely to take chances and unwise risks. They feel that accidents will happen to other people but not to them.

4. *Macho.* This is the thought pattern of people who are always trying to prove that they are better than others. They feel that others should be careful, but not themselves. They feel that they can always manage to handle the difficult situations. They prove themselves by taking risks and try to impress others by acting dangerously. While the macho thought pattern is generally considered to be a characteristic of male thinking, it is not so in this case. In the sense used here, macho is more closely associated with overconfidence, but goes beyond the meaning of that word in that the individual attempts to do difficult things in order to obtain the admiration of others.

5. *External control.* People who have this thought pattern feel that they can do very little, if anything, to control what happens. This thought is characterized by the question, "What's the use?" When things go well, it is attributed to good luck. When things go badly, it is attributed to bad luck, or it is generally the fault of someone else. Since they feel that whatever they do makes no difference, they tend to be passive. Since they feel that they can exercise little or no control over situations, they do not make decisions themselves. They leave decisionmaking responsibilities to others.

In order to teach the student to break the PJ chain we teach him to first recognize it. He then learns to check for personal stress that might force a continuation of the PJ chain. He is then taught to engage in a problem resolving mode after which he does a final check to ensure that the chain is broken.

To modify the effects of hazardous thoughts, a self-assessment test is used to help the student clarify his own most

prominent thought tendencies. In addition, a series of what came to be known as antidote thought patterns are presented to the student to be substituted for the unwanted ones.

Using these and other concepts as a base, we developed a training program which combined a student workbook with prescribed student-instructor experiences on the ground *and* in the air. The program can be integrated into many systems of flight training, but it is important to remember that it was developed for beginners and may not be appropriate for more advanced students. We do believe, however, that the basic principles of the training can be applied to experienced pilots.

After a period of testing and revisions based on student responses, an experiment was designed to test the effectiveness of the training.

Method. The experimental approach consisted of three groups of 27 subjects each. The experimental group received an academic pretest, judgment ground and flight training, an academic posttest and an observation flight at the completion of the training program. The flight control group received only the observation flight. The academic control group received the same written pretest and posttest as the experimental group.

The subjects were all students at Embry-Riddle Aeronautical University and were randomly selected from basic flight course students.

Judgment training consisted of study of student textbooks on judgment in aviation along with guidance from the student's judgment program flight instructor. Flight training consisted of three 2-hour flights during which the flight instructor administered in-flight exercises to measure the student's judgment.

Discussion. The data indicated statistically significant differences between the performance of experimental and control group subjects. This was true both in the acquisition of judgment concepts and in the skills performance as measured during judgment flight situations. The experimental group evidenced an increase in knowledge of the judgment concepts while the control group showed no significant change. Also, the experimental group evidenced a markedly better performance on the post-treatment judgment skills observation flight than did the control group.

One of the major tenets of the program is that students must master judgment concepts before those concepts can be applied in judgment flight situations. Concepts of the judgment training were not only taught during the ground school, but were constantly reinforced during flight training and during preflight and postflight briefings. Although it cannot be said that a direct causal relationship was proven to exist between the judgment ground training and the improvement of judgment in flight as measured by the observation flight, it appears evident that the integrated ground training and flight training did have a positive effect on subject performance in judgment flight situations.

One pleasant aspect was that the subjects participating in the experimental group held strongly positive attitudes about the benefits of the training program. A substantial majority of the group responded favorably to all of the questions posed by the attitude questionnaire. They reported that: (1) they would pay greater attention to judgment concepts in their own future flying, (2) they believed the program to be "a good idea," and (3) they would like to see judgment training material be part of the required studies for a private pilot license.

Two potential limitations to the generalization of the program's potential effects as indicated by these results should be: first, the subjects involved were a relatively homogeneous group. This gives rise to the question as to how the program might transfer to a more heterogeneous group of the subjects. Second, the training period was compressed, covering only one month. A final conclusion cannot be drawn as to the effectiveness of the program when integrated into longer training periods.

This effort at improving pilot judgment is, of course, just a beginning, but I believe that it shows that it can be modified. Now we must turn our attention to developing improved programs for the various categories of the pilot community.

—adapted by permission from Eastern Air Lines FLIGHT LINE

VIEWS FROM READERS

Editor:

The October issue of *Aviation Digest* was among the finest yet. I particularly enjoyed Richard K. Tierney's continuing series "Forty Years of Army Aviation," even though I take exception to one of his comments. Talking about MAST, he commented that the program was not related to tactics and training for combat on the high threat battlefield, thus a casual reader might question the program's validity.

Dick, you fell victim to a kind of thinking that we face all too often from those who don't clearly understand the MAST program or who haven't actively participated in it. The FORSCOM Arms Team, among others, has the same difficulty so you're in good company. I submit that it's good pilot training to be out at 0200 hours, in marginal weather, trying to get to Forks, WA, to pick up a critically injured patient. It's particularly good training for those who must operate over long distances in small formations or as a single ship in the AirLand Battle 2000 scenario.

Picking up a state trooper, burned over 60 percent of his body following a high speed chase and crash, simulates what we will see when one of our tanks gets hit on the North German plain. Flying into a tiny hover-hole high in the Olympic Mountains to pick up a logger who suffered a severed leg when a snaking cable broke, taxes all of a pilot's skills. Keeping the patient and his severed limb alive for the 80-mile flight to Seattle where surgeons successfully reattached it is a credit to the medic and crewchief who might see the same thing following a close 122 mm round in the mountains of Korea.

I, for one, argue loud and long that the MAST program must be kept in the proper perspective or the medevac unit can begin thinking it is their only mission. I would submit that training for combat and the MAST program can complement each other and provide the very best in team training opportunities for the pilots, medics and crewchiefs. An added benefit is the good publicity the Army gets, as Mr. Tierney mentioned, but it is a far cry from what we are in the MAST business for—to train for combat.

COL Douglas E. Moore
Chief, Plans and Operations Div
Office of the Surgeon General

• I couldn't agree more and I apologize to everyone in the MAST program for missing the point so badly. Editor.

Articles from the *Aviation Digest* requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor, *U.S. Army Aviation Digest,* P.O. Drawer P, Ft. Rucker, AL 36362

AVIATION PERSONNEL NOTES

Aircraft Maintenance Officers Course (AMOC) Phase II

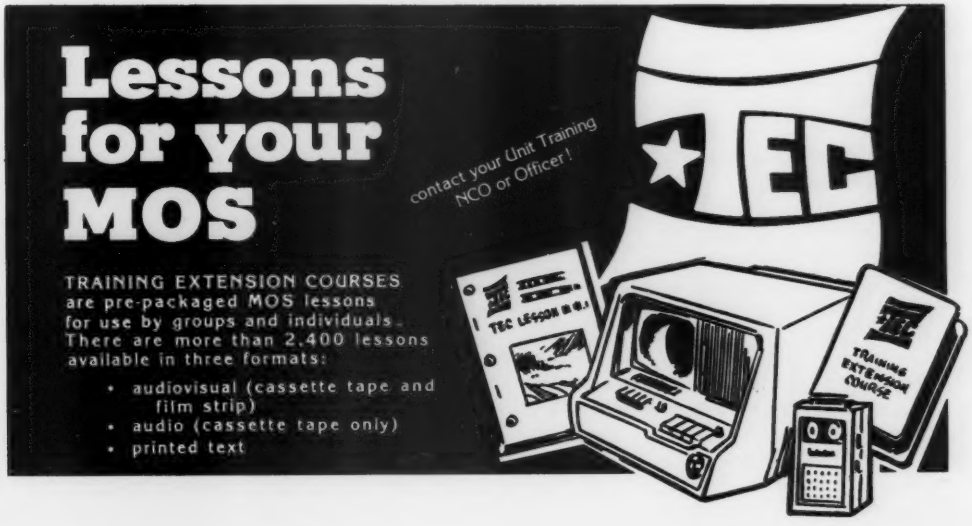
Numerous AMOC Phase II school quotas are still available in fiscal year (FY) 1983 in the OH-58 Kiowa, CH-47 Chinook and AH-1S Cobra aircraft. Maintenance personnel who have attended AMOC Phase I may request quotas by calling SGM Serrano, AUTOVON 221-8156.

Gate Statistics

During FY 1982, 70 percent of those eligible commissioned officers passed their 12-year gate while 98 percent of the eligible warrant officers passed theirs. For the 18-year gate, 57 percent of the commissioned officers and 91 percent of the warrant officers passed.

Aviation Pre-Command Course

The U.S. Army Aviation Center at Ft. Rucker, AL, conducts an aviation course designed specifically for those officers selected for command of an aviation unit. This course has been modified to better meet the needs of aviation commanders in the field by enhancing their aviation management abilities and making maximum use of available resources. This course will greatly assist all newly selected commanders. Senior commanders in the field are encouraged to send command designated officers and executive officers to this 2-week course. Quotas may be obtained by submitting a request to Commander, MILPERCEN, ATTN: DAPC-OPA-V, 200 Stovall Street, Alexandria, VA 22332; AUTOVON 221-8156/7/8.


Lessons for your MOS
contact your Unit Training NCO or Officer!
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IP Equivalency
What It Is, How It Works

LITTLE MORE THAN a decade ago, Army regulations did not require unit instructor pilots (IPs) to be graduates of a formal instructor pilot course (IPC), although such courses were being conducted. The policy was changed and the result was that there were not enough "school trained" instructor pilots to meet the needs of the Army. Therefore, the Army established an alternative method for qualifying aviators to be designated instructor pilots. One method was to attend a formal IPC conducted at the U.S. Army Aviation Center (USAAVNC); the other was to complete an instructor pilot equivalency evaluation as authorizd by Army Regulation (AR) 95-1 and the aircrew training manual (ATM).

The Directorate of Evaluation and Standardization (DES) at Ft. Rucker, AL, regularly receives questions from individuals seeking information on the equivalency process—how and what to train, what tests are to be administered, how many checkrides, to name a few. Neither the ATM nor AR 95-1 specifically indicates what the equivalency evaluation consists of, so the area has become a little "gray."

An individual seeking initial IP qualification in *category* may receive an evaluation by "challenging" a course of instruction offered at USAAVNC, such as the UH-1 Huey or CH-47 Chinook. He must successfully complete all the academic and flight evaluations that make up the particular course. This has led to the coining of the phrase, "challenging the course."

All of the IPCs conducted at Ft. Rucker have common areas in the academic blocks of instruction. These are:

- Instructor pilot fundamentals and general aviation subjects.
- Aerodynamics.
- Aeromedical subjects (fixed wing only).

In addition, the student receives instruction and is tested on maintenance subjects that pertain to his particular aircraft and also takes an open-book operator's manual examination. Therefore, any aviator desiring to "challenge the course" will face written examinations not only pertinent to the particular aircraft but also to those common subjects relevant to the category in which IP designation is sought.

Most rotary wing students will take four written exams (UH-60 Black Hawk students take six written exams), while the fixed wing students will take five exams. The following is a detailed list of written exams the aviator seeking IP equivalency will face:

BOTH CATEGORIES

* Open-book operator's manual (specific aircraft and series).
* Closed-book maintenance subject (specific aircraft and series) (two for UH-60).

ROTARY WING

*Rotary wing aerodynamics.
*IP fundamentals and general aviation subjects.
*Doppler/CIS (UH-60 only).

FIXED WING

*Fixed wing aerodynamics.
*IP fundamentals and general aviation subjects.
*Aeromedical subjects.

Additionally, an oral and flight evaluation will be conducted in accordance with Chapter 7 of the appropriate ATM. Flight tasks to be evaluated will correspond to those that are evaluated in appropriate IP course evaluations. Finally, the individual who is a

successful "challenger" is designated a Department of the Army (DA) instructor pilot, not only for mission, type and design aircraft, but for aircraft category as well. Once qualified in category, the individual can be redesignated as an IP in any aircraft in that category following an appropriate aircraft training program and evaluation by a standardization instructor pilot (SIP).

The IP equivalency has proven to be an effective tool in alleviating shortages of IPs in the field. In many cases, it is the only method for IP qualification, since there are requirements for IPs in aircraft for which USAAVNC does not conduct an IPC. The average equivalency examination takes 2 or 3 days. This takes considerable effort, involving the previously mentioned written exams, plus oral and flight evaluations.

The commander, USAAVNC, has designated DES to administer all IP equivalency evaluations. A unit commander desiring an IP equivalency evaluation must forward a written request for the evaluation to DES in accordance with procedures outlined in chapter 2 of the ATM, or make telephonic coordination with DES Plans and Operations Branch by calling AUTOVON 558-2244/3617. The evaluation is normally accomplished at Ft. Rucker, but through prior coordination can be accomplished when DES is onsite, such as during an annual Aviation Resource Management Survey (ARMS) visit. DES evaluators have often traveled to continental United States locations for the sole purpose of conducting IP equivalency evaluations; however, the local command must fund this travel, furnish the aircraft or provide funding for use of USAAVNC aircraft. Additional requirements that must be met by the requesting unit and the prospective IP include:

- A training record showing completion of all academic and flight training requirements outlined in chapter 2 for IP qualification. DA Form 4507-R series gradeslips will serve this requirement.
- The IP conducting the flight training must complete a final DA Form 4507-R and recommend the individual for IP qualification. This gradeslip must indicate satisfactory completion of all academic and flight training. The best method is to indicate the cumulative training time in the "total flight time" block on the front side of the gradeslip and to make a general statement on the comment slip that all flight and academic training requirements have been completed, since the training record will show the specific training that has been completed.

This is just another way to receive an initial DA instructor pilot qualification when IP courses or quotas are not available to the unit. If the training program outlined is followed, then IP candidates will be prepared for their evaluation.

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker Hot Line, AUTOVON 558-6487 or 205-255-6487 and leave a message

CONNECTION

ACTAAT

Aviation Center Training Analysis and Assistance Team

UPDATE OF TRAINING AIDS

ISSUE: Television tapes and other training aids for equipment that are no longer used by the active Army, but still maintained by the National Guard, require updating to align their use with the applicable aircrew training manual (ATM). A tape explaining how to conduct an out-of-ground-effect hover was cited by the unit as an example. The tape stated the maneuver would be completed at 35 feet above ground level (AGL) while the ATM states 50 feet AGL is the correct height.

COMMENT: The video tape cited on the out-of-ground-effect hover was identified early in 1981 as a program that needed updating. On 19 February 1982, five up-to-date nap-of-the-earth scripts, including this subject, were given to Educational Television Division for production. They were completed and validated in the first quarter of fiscal year 1983 and are being fielded. Reserve and active duty request the tapes through their local TASO. National Guard needs are handled by the ARNG Multi-Media Group, Ft. Rucker.

AH-64 Apache (at left) and AH-1R Cobra

"Attack Helicopter, Sir! First Strike!"

THAT IS THE greeting you will hear when the soldiers of D Company, 7th Combat Aviation Battalion salute their officers. What causes this spontaneous response, this exchange that epitomizes the unit's esprit de corps?

D Company (Attack Helicopter) was originally a separate Forces Command attack helicopter company designated the 155th Aviation Company. Long associated with the Combat Developments Experimentation Command, in June 1980 the company retired its colors and became D Company, 7th Combat Aviation Battalion, 7th Infantry Division. The unit has a long history of participation in aviation experiments which have pioneered tactics and techniques of employment for the aviation community over the past decade. But possibly the most challenging was the unit's preparation for and participation in the Advanced Attack Helicopter Operational Test (OT) II conducted at Ft. Hunter Liggett, CA.

In August 1980, the unit began transitioning into the AH-1S fully modernized (FM) Cobra, leaving behind the antiquated AH-1G. Simultaneously, the company was selected as the unit to test the AH-64A Apache during the operational test. Resources were quickly inventoried and priorities established. There was a tremendous amount of individual and collective training which had to be accomplished and only a short time to do it.

The first step was to train the aircrews on the AH-1S FM, and qualify them on the weapon systems. Additionally, all the maintenance and armament personnel required extensive training. With the aid of the Cobra NETT (new equipment training team) and an aggressive aerial gunnery program at Ft. Irwin, CA, the first objective was accomplished. The operational test plan called for all of the participating aviators to be night vision goggles (NVG) qualified. This requirement led to the next training phase, and this too was accomplished on schedule in the fall of 1980 at Yuma Proving Grounds (YPG), AZ, with the help of the Development Test Training Detachment (DTTD) personnel. Concurrently, crew selection was being conducted to determine who would pilot the Apache, and who would pilot the Cobras that would be compared to the AH-64s. These Cobras, coupled with their scout aircraft, were known as the baseline team. The results of that selection provided a cross section of Army aviators ranging from 21 years old with little more than 600 total flight hours to aviators in their mid-thirties with more than 4,000 flight hours.

In December 1980 and January 1981, those aviators selected to fly the AH-64 were sent to YPG to receive training on the pilot's night vision system (PNVS) surrogate trainer (AH-1S with nose-mounted PNVS). Again, members of DTTD provided quality instruction that was followed by extensive ground school on the Apache and related systems. Yet another selection process was conducted—this time to determine who would occupy the front seat (copilot/gunner station) and who would occupy the back seat (pilot station) of the AH-64. (Note: Because of the expense involved and the shortage of available training time, the AH-64 crewmembers were trained in only one station of the aircraft. Normally, the aviators would be trained in both pilot and copilot/gunner stations.

The scout pilots for the AH-64 departed Ft. Ord in February for Columbus, OH, by way of YPG to

Captain (P) Lawrence E. Casper

Captain Casper is aide-de-camp to the commanding general, 7th Infantry Division and Ford Ord, CA. When he wrote this article, he was commander, D Company, 7th Combat Aviation Battalion, Ford Ord.

receive training and qualification in the Airborne Target Acquisition and Fire Control System (ATAFCS) aircraft (AH-1G/R) and the HELLFIRE missile system. They were to become the "eyes and ears" of the Apaches, simulating the advanced scout. These aviators, as did all of D Company aviators, received extensive training in tactics, threat, communications and combined arms employment from instructors direct from Forts Knox, Sill, Bliss and Rucker. Additionally, a number of maintenance and armament personnel commenced with weeks of technical training on the AH-64 by Hughes Helicopter in Culver City, CA. Petroleum, oil and lubrication personnel were sent to YPG for special training, and in April the baseline scout pilots were dispatched to Ft. Hood, TX, to receive their checkout in the OH-58C Kiowa.

In April 1981, Training and Doctrine Command (TRADOC) sent an evaluation team from Ft. Knox which administered an Army Training and Evaluation Program (ARTEP) to validate the baseline platoon's fighting capability, both day and night. During May, the AH-64 platoon developed new techniques of employment for the Apache. This was necessary because we now have a fighting machine that can kill faster and at greater ranges than our current attack helicopter.

On 1 June 1981, the first all-Army aircrews climbed into three AH-64s and flew them from YPG to Ft. Hunter Liggett to mark the beginning of advanced attack helicopter (AAH) OT-II.

In June, TRADOC evaluators from Ft. Knox returned to administer another ARTEP, this time validating the AH-64 platoon's fighting capability and setting the stage for the "force on force" trials. These trials were the most demanding part of the test and consisted of a maximum of two ATAFCS and three AH-64s, or two OH-58Cs and three AH-1Ss, pitted against a fully instrumented threat array. The threat consisted of a tank force, appropriate command and control, and a complement of air defense weapons. The vehicle and aircraft weapon systems were instrumented with lasers and simulated the actual firing of the system. The vehicle hulls and aircraft fuselages were equipped with sensors providing information on kills and hits to the operators and to the main computer which monitored and recorded the entire battle. These trials, or "battles," were free play exercises which lasted 30 minutes, occurring both day and night, with a frequency of up to four per day. The pilots became proficient in short order—thanks to the gun camera films, access to authorized computer data and the daily exchange of experiences between the aircrews.

Such a demanding flight schedule, requiring virtually 100 percent aircraft availability, 7 days a week, dictated exceptional maintenance support. The unit maintenance effort was awesome. Including the attached aircraft, the company was responsible for maintaining 43 helicopters. This was accomplished in a field environment with daily temperatures exceeding 100 degrees Fahrenheit while consistently being plagued by blowing dust. The unit not only completed daily maintenance in the field for the 3-month test but also performed several aircraft phases and major unscheduled maintenance.

Throughout the unit's training, preparation and finally the execution of the test, some 2,340 flight hours were accumulated in extremely demanding conditions; and this was achieved without a single aircraft mishap.

The end result? The aviators of D Company are trained in virtually every system used in the attack helicopter business. They are rated in the AH-64A, AH-1G/R and all S series, OH-58A/C, and subsystems like NVG, PNVS, TADS (target acquisition and designation system), ALT (airborne laser tracker), FACTS (forward looking infrared radar augmented Cobra TOW system) Cobra and HELLFIRE. They have demonstrated their proficiency on these systems under a myriad of conditions. These aircrews, coupled with the outstanding maintenance and support personnel, have performed a wide ranging test of the world's most sophisticated attack helicopter and have brought the Army one step closer to fielding an all-weather fighting machine.

AH-1R Cobra Airborne Target Acquisition and Fire Control System

THREAT

A LETTER FROM GORGI

Major (P) William F. Voth
Chief, Threat Branch
Directorate of Combat Developments
U.S. Army Aviation Center
Fort Rucker, AL

Dear Mom and Dad:

I am sorry for not writing sooner but so much has happened since last June when we were together at Syzran for my flight school graduation. What a glorious day that was! I was so proud, Mom, when you pinned on my lieutenant bars and aviator wings and I received my diploma which meant I, Gorgi Coutomanov, was now a pilot-engineer. The 4 long years of aviation cadet status at Syzran and all of that difficult work in school and at the flying club all seem worth it now that I am a flight lieutenant. I was glad to hear you enjoyed the Syzran Mom's and Pop's tour after the graduation ceremony.

Dad, I'll never be able to thank you enough for your help in convincing Colonel (Retired) Petrov to use his influence with the local military commissariat to get me accepted in the flight program. He's been running that aeroclub since the Great Patriotic War and is pretty set in his ways; it's amazing what a bottle of French Cognac and two pair of Levi blue jeans will do!

When I arrived at Syzran I found that all of my flight cadet classmates had as much or more flight experience from their hometown aeroclubs as I had. Also, I quickly learned they were the cream of the crop of Russian youth. They all had scored as high as I did on the flight school competitive exams and all were from families which were considered politically reliable. Another common feature of my cadet classmates was that they were all 17 to 21 years old, except for the prior service guys who were as old as 23. All were physically fit and highly motivated.

I was really scared at first when we were told that 33 percent of us would wash out during the 4 years. This fear motivated me to study harder. I found out as time passed, however, that most of that 33 percent was made up of cadets eliminated for inability to master flying techniques and for medical reasons. Few cadets were washed out for academic deficiencies or disciplinary reasons. I am not saying the academics were easy. We worked very hard at a wide variety of engineering and military subjects, including higher mathematics, physics, chemistry, radio engineering, meteorology and aerodynamics. There were actually more than 50 subjects! A great deal of attention was also devoted to our idealogical development. This area was primarily directed at developing dedication to Marxist-Leninist ideals and unquestioning obedience to military and political authorities.

I was lucky to be accepted for flight school at Syzran; our instructors told us it is the best of the 15 higher aviation schools. Only two schools train helicopter pilots, Syzran

and Saratov. The training at the others includes pilot and command post air controllers for the fighter aviation and air defense, pilots for military transport aviation and aviation navigators.

A picture of me on the flight line with my Mi-24 Hind. That's me in the gunner's seat looking at the camera.

You know I have always been crazy about flying, so it should be no surprise that my most memorable training at Syzran was the actual cockpit time. When I arrived (almost 5 years ago now!) I thought my extensive aviation experience at the local aeroclub would put me well ahead of my classmates. I found out in a hurry I was very wrong! I didn't realize there were more than 100 such clubs throughout the Soviet Union with about 300,000 members. There is one club in almost every large city! Just like our club, all the clubs have their own facilities, equipment and aircraft, most of which they receive from the armed forces. The technical personnel and flight instructors at the clubs are former military officers or club alumni who also are military reserve officers. Each of the local aeroclubs, from which most of my cadet classmates came, is run about the same. There is a very difficult preacceptance screening which is based on superior performance ratings in school or place of work, demonstrated political reliability through membership in Komsomal (Communist youth organization) and passing a strict medical examination. After being admitted into the aeroclub program, cadets attend lectures on basic aerodynamics and study aircraft and engines, flying techniques and other aviation-related disciplines. This theoretical course is usually given in the winter months, and classes are held at night so that students may continue their studies at regular schools or hold daytime jobs. The aeroclub program is not allowed to interfere with regular education.

Students who successfully complete the aeroclub theoretical course continue into flight training. I remember well those glorious summer months when we lived in the camp near the airfield from which we flew. Our cadets were divided into groups of five or six, with one flight instructor assigned to each group. I found out that most of my cadet classmates at Syzran went through similar flight programs of instruction at their aeroclubs. We performed about 70 landings and logged about 10 hours of flying time in the Mi-1 Hare with our instructor before we were allowed to fly solo. After soloing we flew about 35 more hours and then the aeroclub awarded us the title of sportsman-pilot. Some of my classmates also flew the Mi-2 Hoplite at their flying club. These guys did well in their initial flight training at Syzran because we did a lot of our flight instruction in the Mi-2. One classmate claimed his local aeroclub flew 8,000 hours in 1975 and made 16,000 landings; the club's parachutists made 3,823 jumps! Five hundred men and women were engaged in pilot and parachute training activities, and 357 completed their training program.

The flight and academic experience I got in the aeroclub really gave me a good foundation in flying and helped a lot when we started our flight training at Syzran. We

started flying in our sophomore year at Syzran and flew about 100 training hours that year and in each of the next 2 years. We started in the Mi-1 Hare and progressed to the Mi-2 Hoplite and finally the Mi-8 Hip. Toward the end of flight school, we were all hoping we would be selected for assignment to an Mi-24 Hind unit. Only the very best of us were selected. It's too bad all 300 of the guys couldn't be selected. Syzran did a lot better than the other helicopter higher aviation school at Saratov in the selections. I was really proud when my name was on that list. I was even more pleased when I got my PCS (permanent change of station) orders to the "V.I. Lenin" Helicopter Regiment in the Soviet Union's Far East Military District.

What an honor it is to be assigned to such a prestigious unit! The regiment was officially established in 1921 but can trace its history all the way back to the very first days of Soviet power. Three reconnaissance aviation detachments, the 24th, the 35th and the 49th, were organized in 1918 and served in the Russian Civil War of 1918 to 1920. The biplanes of these detachments flew more than 600 missions during the war and were organized into the 1st Reconnaissance Aviation Squadron in 1921. In 1924, following the death of Comrade Lenin, the squadron was awarded the honorific "V.I. Lenin." The squadron fought against the Germans during the Great Patriotic War and the Japanese during 1945 as a bomber unit. In the postwar period it was reorganized as a separate helicopter regiment.

As you have most likely read in the newspapers over the last 15 years, the "V.I. Lenin" Helicopter Regiment has continually distinguished itself in Socialist training competitions. In 1968, the regiment was awarded the Order of the Red Banner. In 1969, it won the Challenge Red Banner of the Military Council of the Far East Military District. In 1977, after 10 straight years of receiving outstanding ratings in unit evaluations, the regiment was awarded the Pennant of the Ministry of Defense of the USSR for Courage and Valor.

In 1978, when our late great leader, President Leonid Breznev, visited the Far East Military District to observe a combined arms training exercise, we had the privilege of being selected to participate. What an honor!

When I arrived at the regiment in June, I was very pleased with myself and I'll admit I was a bit cocky. That didn't last very long! I learned very quickly that my 376 total flight hours, which included my aeroclub time, my time at Syzran and the small amount of private time I got in between, was very insignificant when compared to the other pilots in the regiment. I was at the bottom again! Actually I still am, but I'm working hard and gaining flying time and valuable experience slowly but surely. Soon I hope I will attain the minimum acceptable level of tactical proficiency and become a pilot second class. Right now I am a pilot third class which is the lowest category.

Before I make second class I will have to demonstrate the capability to perform missions in day, both clear and adverse weather, and at night during clear weather only. Until that time, which I hope will be soon (I've been at the bottom—third class—for more than 7 months now!), I am allowed to fly only as wingman (we always fly in pairs) to the higher class pilots. I am closely supervised by everyone and not allowed to fly in

anything but clear weather. I have completed my Mi-24 Hind transition and really enjoy flying the best attack helicopter in the world. My instructor pilot, who is a pilot first class and has in excess of 1,000 hours in the Hind, said I fly very well and should have no problem making second class on time.

When I finally gain enough experience and skill to become a pilot first class, which will probably take anywhere from 3 to 6 years and 300 to 400 operational flight hours, I will be fully combat capable in all weather conditions. Also, I will be eligible to become a unit flight instructor. The instructors are lucky because they can get as much as 200 flight hours per year. Normally, the rest of us only get about 130 hours. Right now in our regiment, we have 65 percent of our pilots in the first and second class category, and 25 percent are third class. The other 10 percent are designated the Snipers. These are the best of the best and are considered fully qualified for any mission under any condition. This is the highest designation a pilot can achieve. There is a lot of pressure to maintain one's proficiency since the pilot's class rating must be recertified annually.

More is at stake than just prestige, however. A pilot's pay and position depend on his class rating. I'm not talking about insignificant amounts either. Did you know our flight leader (who is required to be a pilot first class), as a minimum, earns three times as much as Army officers of the same rank? Also, this salary is greater than doctors and lawyers in the Soviet society!

We have been training very hard on combined arms tactics lately. It is very difficult for me to master the techniques of supporting the ground commanders. I sometimes think the Americans have the right idea in having their aviation units within their Army. Our system of having all aviation belonging to the Air Force seems to cause problems in communication and understanding. I think this lesson is becoming more and more apparent to our leaders and that, as a result, we will become more and more like an "Army Aviation." Another factor in combined arms operations which scares us as Air Force guys is that the air defense weapons on the ground are under the control of the ground regimental unit commander. In spite of all the extensive pre-mission planning and all the rigid controls on these weapons, we're always afraid we'll be shot down by one of those Army guys by mistake.

All of our profession is not this frightening. We live very well here in the regiment. In fact, all the stories we heard about always having the best food, clothing and living conditions are all true. The treatment of the enlisted people in the regiment is just the opposite. They really don't have much to look forward to from day to day and as a result they are usually very poorly motivated. In fact, the regiment's reenlistment rate is less than 2 percent (pilot retention is normally near 100 percent). One of our big problems with the enlisted troops is that they always seem to be drunk! It is common knowledge that they drink the rectified ethyl alcohol which is intended to be used for aircraft deicing. This is such a problem that we seldom have any when we fly!

Well, this letter has gotten longer than I intended, so I think I will stop.

With much love,
Your son, Gorgi

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U.S. Army Communications Command
ATC ACTION LINE

Military Planning Weather Minimums

Mr. Dennis E. Newport
U.S. Army Air Traffic Control Activity
Aeronautical Services Office
Cameron Station, Alexandria, VA

PROBLEM? What weather planning minimum do you use when the note at the bottom of a published instrument procedure increases the decision height (DH) or minimum descent altitude (MDA) when using a remote altimeter source? HINT—You do not use the ceiling and visibility found in the minimum box.

When a control zone is not in effect, published instrument procedures are not authorized unless you have a local altimeter source or an approved remote source. When the remote source is located more than 5 miles from the runway threshold, the DH or MDA will be increased depending on distance, terrain and homogeneous weather.

Although there is no documentary evidence normally available to aviators, TM 95-226 (TERPS), chapter 3, paragraph 310 and pargraph 9F(6) of the Interagency Cartographic Committee (IACC) 4 charting specifications implies that the weather planning mimimums must be increased accordingly whenever an increased DH or MDA is published. Paragraph 9F(6) of the charting specifications states:

> **"When not furnished, the military minimum data, consisting of the ceiling and visibility, will be computed by the producing agency. The ceiling will be computed by subtracting the field elevation from the DH or MDA; and if not in even hundreds (of feet), this value will be rounded off upwards to the next hundred foot. The visibility will be the statute mile equivalent of the visibility value identified with the DH or MDA."**

The following is an example of how to compute the new weather minimums with a remote altimeter source.

CATEGORY	A	B	C	D
S-ILS 2	1013-¾ 250 (300-¾)			
S-LOC 2	1160-¾ 397 (400-¾)			
CIRCLING	1220-1 456 (500-1)		1220-1½ 456 (500-1½)	1340-2 576 (600-2)
When control zone not in effect, except for operators with approved weather reporting services: 1. Use Burlington, IA altimeter setting. 2. Increase all DH/MDA's 140 feet. 3. Alternate minimums NA. ACTIVATE MALSR Rwy 2-120.7. CAT D S-LOC visibility increased ¼ mile for inoperative MM. Categories A, B, C, S-LOC increased ¼ mile for inoperative MALSR. ▽ △				

1,013 Feet **DH when control zone in effect**
140 Feet **Increase when control zone not in effect**

1,153 Feet **New DH**
764 Feet **Less airport elevation**

389 Feet **Rounded up - (400 3/4)**

In the future, we hope to place this information in the minimum box. However, due to limited space, it will not be possible on all procedures. Example below:

CATEGORY	A	B	C	D
S-14	940-1 672 (700-1)		940-2 672 (700-2)	940-2¼ 672 (700-2¼)
CIRCLING	940-1 672 (700-1)		940-2 672 (700-2)	940-2¼ 672 (700-2¼)
CTZL NOT EFFECTIVE/BOSTON, MA ALTIMETER SETTING MINIMA				
S-14	1060-1 792 (800-1)	1060-1¼ 792 (800-1¼)	1060-2¼ 792 (800-2¼)	1060-2½ 792 (800-2½)
CIRCLING	1060-1 792 (800-1)	1060-1¼ 792 (800-1¼)	1060-2¼ 792 (800-2¼)	1060-2½ 792 (800-2½)
▽ △ NA				

We will recommend a change to the specifications for the DOD FLIP terminal books' legend page showing the above method of computing new planning minimums based on remote altimeter source.

Readers are encouraged to address matters concerning air traffic control to:
Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22314